# **HEAT PUMPS** NX-N-G02-U 0152P - 0812P | 41.53 - 227.6 kW

Reversible Air-Source Heat Pump For Outdoor Installation







Air-Source Heat Pumps for outdoor installation, for the production of chilled or hot water. The units feature hermetic scroll compressors using R-410A refrigerant, axial fans, plate heat exchanger, condensing coils with copper tubes and aluminum fins and electronic expansion valve. The range is composed by units equipped with two compressors in a single-circuit configuration.



### Electronic control W3000+

W3000+ features an easy-to-use interface and a complete LCD display that allows comprehensive access to the unit via a multi-language menu (19 languages are available). The diagnostics includes a complete alarm management system. With the "black-box" feature, the alarm history displays all parameters at the time of the alarm event for enhanced analysis and troubleshooting of system operation. The programmable timer manages a weekly schedule via time bands to optimize unit performance by minimizing power consumption during unoccupied periods. Up to 10 daily time bands can be associated with different operating set points. KIPlink -Keyboard In Your Pocket, is also available as an option. KIPlink is the innovative user interface based on Wi-Fi technology that allows an authorized user to interface with the unit directly from a smartphone, tablet or PC by scanning a QR Code.

The regulation is based on the patented "Quickmind" water temperature regulation logic, which uses self-adapting control logic to maintain temperature setpoints and optimizes performance even in low water volume systems. As an alternative, proportional or proportional-integral regulations are also available.

Optional proprietary Plant Control solutions can control the individual units and their respective parameters in applications with plants containing multiple heat pump units. Energy Consumption Metering and Performance Monitoring solutions are also available upon request.

System Supervision can be easily integrated via proprietary devices available, or via integration with third party control systems through common Building Automation Control Protocols such as Mitsubishi M-NET, ModBus, Bacnet. Bacnet-over-IP, LonWorks and Konnex. Communication protocols are also compatible with the remote keyboard (up to 8 units). Reversible Air-Source Heat Pumps include a defrost control which follows a proprietary self-adaptive control logic. The specialized control logic monitors several operational parameters and helps to reduce both the frequency and duration of defrost cycles, and improves the overall energy efficiency of the heat pump when operating in heating mode.

Refrigerant	PA10A
Versions	/
- Basic	
Configurations	/
- Basic Function	D Partial Condensing Heat Recovery function
Features	/

#### HIGH EFFICIENCY

Very high efficiency at full and partial load, at the highest market levels, thanks to advanced technologies implemented in the Heat Pump. These units can contribute to a significant reduction in operating costs and can provide for highly attractive R.O.I.'s.

#### EXTREMELY SILENT OPERATION

The best balance between silence and efficiency, as a result of a systematic design process aimed to minimize sound levels.

#### WIDE OPERATING LIMITS

These units will operate at full load in heat pump mode down to -15 °C of outdoor air temperature. For temperatures lower than -15 °C, the control can easily manage control integration with an auxiliary heat source, to supplement the plant leaving water temperature. In chiller mode, full load operation is guaranteed from -10 °C up to 46 °C.

#### SMART DEFROST

The advanced self-adaptive proprietary Defrosting control logic takes into account all the operating parameters and the ambient temperature conditions. The frequency and duration of Defrost cycles are optimized and reduced to the minimum necessary, in order to ensure an increase in efficiency and net heating capacity of the units when operating in conditions that cause the formation of frost on the coil.

### ELECTRONIC EXPANSION VALVE INCLUDED STANDARD

The use of the electronic expansion valve provides for significant benefits, especially in cases of varying external conditions. The EEV technology has been integrated into these units as a result of accurate design selections concerning the refrigerant circuit and the optimization of operation under various working conditions.

#### INTEGRATED HYDRONIC PACKAGE

Factory mounted, integrated hydronic modules are available with 1 or 2 pumps, high or low head.

#### AHRI CERTIFICATION

Certified in accordance with AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P). Certified units can be found in the AHRI directory at www.ahridirectory.org.

### **ASHRAE 90.1 COMPLIANT**

The performance in cooling mode surpasses the minimum efficiency requirement as set by ASHRAE 90.1-2019. This makes the unit the perfect solution for any project intended to meet stringent building energy efficiency certifications.

### Accessories

- Soft Starters
- Traditional Condenser Coils available with pre-painted fins or fin quard Silver protective treatment upon request.
- Drain Pan with freeze-protection electric heater
- Set-up for remote connectivity with protocols: M-NET, ModBus, ModBus over IP (TCP/IP), Echelon, BacNet MS/TP RS485, Bacnet over IP, Konnex, SNMP
- Energy meter
- Auxiliary heat source management, to integrate and control additional heat

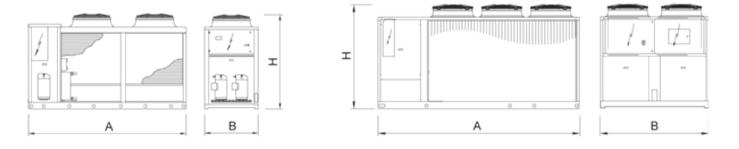
- 3-way Valve control for DHW production
- Night Mode is a system setting which limits the maximum Sound Level of the unit according to a specified schedule
- User Limit Control (ULC) allows the safe startup of the unit in critical conditions of water and air temperature.
- Outside Air temperature sensor for supply water set point compensation.
- Wired Remote Control Keypad (distance to 200m and to 500m)
- generators in overall system







### **Dimensional Drawing**







## **5.1 GENERAL TECHNICAL DATA**

[Standard AHRI 550/590 - SI System ]

							0302P				
	V/ph/Hz	575/3/60	575/3/60	575/3/60	575/3/60	575/3/60	575/3/60	575/3/60	575/3/60	575/3/60	575/3/6
(1)(2)(10)		41.15	45.47	53.54	61.28	68.39	76.78	91.69	105.8	119.3	135.
(1)(2)(10)	kW	14.28	15.75	18.27	20.95	23.78	26.77	30.52	36.01	41.63	46.5
(1)(2)(10)											
(1)(2)(10)											
	kg/kW	0.35	0.32	0.28	0.25	0.23	0.35	0.40	0.35	0.32	0.31
(3)	kW	48.84	53.71	60.78	70.76	76.77	89.76	106.1	119.6	133.6	152.
(3)	kW	16.59	17.37	20.22		25.43		34.78			49.3
(3)	kW/kW	2.940	3.086	3.010	2.987	3.024	3.086	3.049	3.131	3.158	3.08
(1)(2)	l/s	1.789	1.977	2.328	2.664	2.973	3.338	3.986	4.599	5.186	5.86
(1)(2)	kPa	33.0	33.0	35.0	29.9	29.3	37.0	24.7	27.7	27.4	39.2
(3)	l/s	2.108	2.318	2.623	3.054	3.313	3.873	4.580	5.163	5.764	6.57
(3)	kPa	45.8	45.4	44.4	39.3	36.4	49.8	32.6	34.9	33.8	49.2
. ,											
	N°	2	2	2	2	2	2	2	2	2	2
	N°	2	2	2	2	2	2	2	2	2	2
	N°	1	1	1	1	1	1	1	1	1	1
		STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEF
	%	50	50	50	50	50	50	50	50	50	50
		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410
	ka	14.5	14.5	15.0	15.0	15.5	27.0	36.2	37.0	38.0	42.0
		3.50	3.50	5.00	5.00	6.50	6.50	6.50	7.90	9.30	11.5
	N°	4	4	6	6	6	2	3	3	3	4
	m³/s	5.33	5.33	6.07	7.44	7.44	8.50	12.23	12.23	12.23	16.1
	kW	0.31	0.31	0.29	0.31	0.31	1.05	1.05	1.05	1.05	1.05
(4)	dB(A)	49	49	49	50	50	50	50	53	54	56
		81	81	81	82	82	82	82		86	88
	( )										88
(0)(0)	42(7.1)	•••	•••	•••							
(9)	mm	2395	2395	2395	2395	2395	3360	3980	3980	3980	411
											222
(9)	mm	1865	1865	1865	1865	1865	1980	1980	1980	1980	215
(9)	kg	670	680	710	730	770	960	1130	1220	1310	190
	(1)(2)(10) (1)(2)(10) (1)(2)(10) (3) (3) (3) (3) (3) (3) (3) (3) (3) (3	(1)(2)(10) kW/kW (1)(2)(10) kW/kW kg/kW (3) kW (3) kW (3) kW (3) kW/kW (3) kW/kW (3) kVA (3) kVA (3) kPa (3) l/s (3) kPa (3) kPa (3) kPa (3) kPa (3) kPa (3) kV (4) kA (5)(7) dB(A) (6)(8) dB(A) (9) mm (9) mm	(1)(2)(10)       kW/kW       2.881         (1)(2)(10)       kW/kW       4.740         kg/kW       0.35         (3)       kW       4.740         (3)       kW       4.59         (3)       kW/kW       2.940         (1)(2)       l/s       1.789         (1)(2)       kPa       33.0         (3)       kV/kW       2.940         (1)(2)       kPa       33.0         (3)       kVs       2.108         (3)       kPa       45.8         N°       2       N°         N°       1       STEPS         %       50       R410A         kg       14.5       kg         kg       3.50       N°         N°       4       m³/s         1       STEPS       %         %       50       R410A         kg       14.5       kg         kg       3.50       N°         N°       4       m³/s         (4)       dB(A)       49         (5)(7)       dB(A)       81         (6)(8)       dB(A)       81         (9)       <	(1)(2)(10)         kW/kW         2.881         2.880           (1)(2)(10)         kW/kW         4.740         4.700           kg/kW         0.35         0.32           (3)         kW         48.84         53.71           (3)         kW         16.59         17.37           (3)         kW/kW         2.940         3.086           (1)(2)         l/s         1.789         1.977           (1)(2)         kPa         33.0         33.0           (3)         kVa         2.108         2.318           (3)         kPa         45.8         45.4           N°         2         2         N°         1           (3)         kPa         45.8         45.4           N°         2         2         N°         1           STEPS         STEPS         50         50           %         50         50         50           R410A         R410A         R410A           kg         3.50         3.50           N°         4         4           m³/s         5.33         5.33           kW         0.31         0.31 <t< td=""><td><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></td><td>(1)(2)(10)       kW/kW       2.881       2.880       2.923       2.919         (1)(2)(10)       kW/kW       4.740       4.700       4.680       4.690         kg/kW       0.35       0.32       0.28       0.25         (3)       kW       48.84       53.71       60.78       70.76         (3)       kW       16.59       17.37       20.22       23.74         (3)       kW/kW       2.940       3.086       3.010       2.987         (1)(2)       l/s       1.789       1.977       2.328       2.664         (1)(2)       kPa       33.0       35.0       29.9         (3)       kVa       45.8       45.4       44.4       39.3         (3)       kPa       45.8       45.4       44.4       39.3         N°       2       2       2       2       2         N°       1       1       1       1       1         STEPS STEPS STEPS STEPS         %       50       50       50       50         %       50       50       50       50       50         %       50       50       50       50       &lt;</td><td><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></td><td>(1)(2)(10)       kW/kW       2.881       2.880       2.923       2.919       2.874       2.866         (1)(2)(10)       kW/kW       4.740       4.700       4.680       4.690       4.740       4.800         kg/kW       0.35       0.32       0.28       0.25       0.23       0.35         (3)       kW       48.84       53.71       60.78       70.76       76.77       89.76         (3)       kW       16.59       17.37       20.22       23.74       25.43       29.14         (3)       kW/kW       2.940       3.086       3.010       2.987       3.024       3.086         (1)(2)       l/s       1.789       1.977       2.328       2.664       2.973       3.338         (1)(2)       kPa       33.0       33.0       35.0       29.9       29.3       37.0         (3)       l/s       2.108       2.318       2.623       3.054       3.313       3.873         (3)       kPa       45.8       45.4       44.4       39.3       36.4       49.8         M°       2       2       2       2       2       2       2       2       2       2       2</td><td><math display="block"> \begin{array}{cccccccccccccccccccccccccccccccccccc</math></td><td><math display="block">\begin{array}{cccccccccccccccccccccccccccccccccccc</math></td><td>(1)(2)(10)       kW/kW       2.881       2.880       2.923       2.919       2.874       2.866       3.007       2.939       2.868         (1)(2)(10)       kW/kW       4.740       4.700       4.680       4.690       4.740       4.800       4.700       4.740       4.710         kW/kW       0.35       0.32       0.28       0.25       0.23       0.35       0.40       0.35       0.32         (3)       kW       48.84       53.71       60.78       70.76       76.77       89.76       106.1       119.6       133.6         (3)       kW       16.59       17.37       20.22       23.74       25.43       29.14       34.78       38.24       42.34         (3)       kW/kW       2.940       3.086       3.010       2.987       3.024       3.086       4.599       5.186         (1)(2)       kPa       33.0       33.0       35.0       29.9       29.3       37.0       24.7       27.7       27.4         (3)       kPa       45.8       45.4       44.4       39.3       36.4       49.8       32.6       34.9       33.8         (1)(2)       kPa       45.8       45.4       44.4</td></t<>	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(1)(2)(10)       kW/kW       2.881       2.880       2.923       2.919         (1)(2)(10)       kW/kW       4.740       4.700       4.680       4.690         kg/kW       0.35       0.32       0.28       0.25         (3)       kW       48.84       53.71       60.78       70.76         (3)       kW       16.59       17.37       20.22       23.74         (3)       kW/kW       2.940       3.086       3.010       2.987         (1)(2)       l/s       1.789       1.977       2.328       2.664         (1)(2)       kPa       33.0       35.0       29.9         (3)       kVa       45.8       45.4       44.4       39.3         (3)       kPa       45.8       45.4       44.4       39.3         N°       2       2       2       2       2         N°       1       1       1       1       1         STEPS STEPS STEPS STEPS         %       50       50       50       50         %       50       50       50       50       50         %       50       50       50       50       <	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(1)(2)(10)       kW/kW       2.881       2.880       2.923       2.919       2.874       2.866         (1)(2)(10)       kW/kW       4.740       4.700       4.680       4.690       4.740       4.800         kg/kW       0.35       0.32       0.28       0.25       0.23       0.35         (3)       kW       48.84       53.71       60.78       70.76       76.77       89.76         (3)       kW       16.59       17.37       20.22       23.74       25.43       29.14         (3)       kW/kW       2.940       3.086       3.010       2.987       3.024       3.086         (1)(2)       l/s       1.789       1.977       2.328       2.664       2.973       3.338         (1)(2)       kPa       33.0       33.0       35.0       29.9       29.3       37.0         (3)       l/s       2.108       2.318       2.623       3.054       3.313       3.873         (3)       kPa       45.8       45.4       44.4       39.3       36.4       49.8         M°       2       2       2       2       2       2       2       2       2       2       2	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	(1)(2)(10)       kW/kW       2.881       2.880       2.923       2.919       2.874       2.866       3.007       2.939       2.868         (1)(2)(10)       kW/kW       4.740       4.700       4.680       4.690       4.740       4.800       4.700       4.740       4.710         kW/kW       0.35       0.32       0.28       0.25       0.23       0.35       0.40       0.35       0.32         (3)       kW       48.84       53.71       60.78       70.76       76.77       89.76       106.1       119.6       133.6         (3)       kW       16.59       17.37       20.22       23.74       25.43       29.14       34.78       38.24       42.34         (3)       kW/kW       2.940       3.086       3.010       2.987       3.024       3.086       4.599       5.186         (1)(2)       kPa       33.0       33.0       35.0       29.9       29.3       37.0       24.7       27.7       27.4         (3)       kPa       45.8       45.4       44.4       39.3       36.4       49.8       32.6       34.9       33.8         (1)(2)       kPa       45.8       45.4       44.4





## **GENERAL TECHNICAL DATA**

[Standard AHRI 550/590 - SI System ]

Power supply PERFORMANCE			0612P	0662P	0712P	0812P	
		V/ph/Hz	575/3/60	575/3/60	575/3/60	575/3/60	
		I.					
COOLING ONLY							
Cooling capacity	(1)(2)(10)	kW	154.0	180.2	205.6	225.6	
Fotal power input	(1)(2)(10)	kW	50.95	59.88	66.05	76.38	
COPr	(1)(2)(10)	kW/kW	3.026	3.008	3.115	2.953	
PLV.SI REFERENCE	(1)(2)(10)	kW/kW		4.680	4.700	4.700	
Rc (ASHRAE)	(.)(=)()	kg/kW	0.35	0.30	0.44	0.40	
HEATING ONLY		ng/nu	0.00	0.00	0.11	0.10	
Fotal heating capacity	(3)	kW	169.1	191.6	222.1	247.6	
Fotal power input	(3)	kW	54.71	63.93	73.24	82.12	 
COP	(3)	kW/kW	3.091		3.034	3.016	
EXCHANGERS	(0)	1007/1000	0.001	2.000	0.004	0.010	
TEAT EXCHANGER USER SIDE IN REFRIGERATION							
Vater flow	(1)(2)	l/s	6.697	7.835	8.939	9.808	
					47.2	48.4	
Pressure drop at the heat exchanger	(1)(2)	kPa	31.5	43.1	41.2	40.4	
HEAT EXCHANGER USER SIDE IN HEATING	(2)	17-	7 000	0.000	0 507	10.00	
Nater flow	(3)	l/s	7.296	8.269	9.587	10.69	
Pressure drop at the heat exchanger	(3)	kPa	37.4	48.0	54.3	57.4	
Compressors nr.		N°	2	2	2	2	 
Number of capacity steps		N°	2	2	2	2	 
No. Circuits		N°	1	1	1	1	
Regulation					STEPS		
Min. capacity step		%	50	50	50	50	
Refrigerant					R410A		
Refrigerant charge		kg	53.9	54.1	89.5	91.0	
Dil charge		kg	13.6	13.1	12.6	12.6	
FANS							
Quantity		N°	4	4	6	6	
Air flow		m³/s	15.51	16.91	22.52	22.52	
ans power input		kW	1.05	1.25	1.05	1.05	
NOISE LEVEL							
Sound Pressure	(4)	dB(A)	57	57	57	58	
Sound power level in cooling	(5)(7)	dB(A)	89	89	89	90	
Sound power level in heating	(6)(8)	dB(A)	89	89	89	90	
SIZE AND WEIGHT	× /X-/	. 7	-		-		
A	(9)	mm	4110	4110	5110	5110	
3	(9)	mm	2220	2220	2220	2220	
4	(9)	mm	2150	2150	2150	2150	
Dperating weight	(9)	kg	2080	2090	2500	2530	





## **GENERAL TECHNICAL DATA**

[Standard AHRI 550/590 - I-P System ]

RT kW tu/hW tu/hW bs/RT Btu/h kW tu/hW GPM t H2O GPM t H2O GPM t H2O SPM t H	<b>11.70</b> 14.28 9.831 16.17 2.74 <b>166.7</b> 16.59 10.03 <b>28.36</b> 11.0 <b>33.41</b> 15.3 2 2 2 1 STEPS 50	<b>12.93</b> 15.75 9.826 16.04 2.48 <b>183.2</b> 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1	<b>15.22</b> 18.27 9.975 15.97 2.17 <b>207.4</b> 20.22 10.27 36.89 11.7 41.57 14.9 2 2 2 1	575/3/60 <b>17.43</b> 20.95 9.960 16.00 1.90 <b>241.5</b> 23.74 10.19 <b>42.23</b> 10.0 <b>48.40</b> 13.1 <b>2</b> 2 1	575/3/60 <b>19.45</b> 23.78 9.806 16.17 1.76 <b>261.9</b> 25.43 10.32 <b>47</b> .13 9.81 52.51 12.2 2 2 1	575/3/60 21.83 26.77 9.778 16.38 2.73 306.3 29.14 10.53 52.91 12.4 61.39 16.7 2 2	575/3/60 26.07 30.52 10.26 16.04 3.06 362.2 34.78 10.40 63.18 8.27 72.60 10.9 2 2	575/3/60 30.08 36.01 10.03 16.17 2.71 408.2 38.24 10.68 72.90 9.26 81.83 11.7 2	575/3/60 33.92 41.63 9.785 16.07 2.47 <b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3 2	<b>38.38</b> 46.58 9.885 16.00 2.41 <b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
kW tu/hW bs/RT <b>Btu/h</b> kW tu/hW GPM t H2O GPM t H2O N° N° N° N°	14.28 9.831 16.17 2.74 <b>166.7</b> 16.59 10.03 28.36 11.0 33.41 15.3 2 2 2 1 STEPS 50	15.75 9.826 16.04 2.48 <b>183.2</b> 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	18.27 9.975 15.97 2.17 <b>207.4</b> 20.22 10.27 <b>36.89</b> 11.7 <b>41.57</b> 14.9 <b>2</b> 2 1	20.95 9.960 16.00 1.90 <b>241.5</b> 23.74 10.19 <b>42.23</b> 10.0 <b>48.40</b> 13.1 <b>2</b> 2	23.78 9.806 16.17 1.76 261.9 25.43 10.32 47.13 9.81 52.51 12.2 2 2	26.77 9.778 16.38 2.73 <b>306.3</b> 29.14 10.53 52.91 12.4 61.39 16.7 2	30.52 10.26 16.04 3.06 <b>362.2</b> 34.78 10.40 63.18 8.27 72.60 10.9 2	36.01 10.03 16.17 2.71 <b>408.2</b> 38.24 10.68 72.90 9.26 81.83 11.7 2	41.63 9.785 16.07 2.47 <b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3	46.58 9.885 16.00 2.41 <b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
kW tu/hW bs/RT <b>Btu/h</b> kW tu/hW GPM t H2O GPM t H2O N° N° N° N°	14.28 9.831 16.17 2.74 <b>166.7</b> 16.59 10.03 28.36 11.0 33.41 15.3 2 2 2 1 STEPS 50	15.75 9.826 16.04 2.48 <b>183.2</b> 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	18.27 9.975 15.97 2.17 <b>207.4</b> 20.22 10.27 <b>36.89</b> 11.7 <b>41.57</b> 14.9 <b>2</b> 2 1	20.95 9.960 16.00 1.90 <b>241.5</b> 23.74 10.19 <b>42.23</b> 10.0 <b>48.40</b> 13.1 <b>2</b> 2	23.78 9.806 16.17 1.76 261.9 25.43 10.32 47.13 9.81 52.51 12.2 2 2	26.77 9.778 16.38 2.73 <b>306.3</b> 29.14 10.53 52.91 12.4 61.39 16.7 2	30.52 10.26 16.04 3.06 <b>362.2</b> 34.78 10.40 63.18 8.27 72.60 10.9 2	36.01 10.03 16.17 2.71 <b>408.2</b> 38.24 10.68 72.90 9.26 81.83 11.7 2	41.63 9.785 16.07 2.47 <b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3	46.58 9.885 16.00 2.41 <b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
kW tu/hW bs/RT <b>Btu/h</b> kW tu/hW GPM t H2O GPM t H2O N° N° N° N°	14.28 9.831 16.17 2.74 <b>166.7</b> 16.59 10.03 28.36 11.0 33.41 15.3 2 2 2 1 STEPS 50	15.75 9.826 16.04 2.48 <b>183.2</b> 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	18.27 9.975 15.97 2.17 <b>207.4</b> 20.22 10.27 <b>36.89</b> 11.7 <b>41.57</b> 14.9 <b>2</b> 2 1	20.95 9.960 16.00 1.90 <b>241.5</b> 23.74 10.19 <b>42.23</b> 10.0 <b>48.40</b> 13.1 <b>2</b> 2	23.78 9.806 16.17 1.76 261.9 25.43 10.32 47.13 9.81 52.51 12.2 2 2	26.77 9.778 16.38 2.73 <b>306.3</b> 29.14 10.53 52.91 12.4 61.39 16.7 2	30.52 10.26 16.04 3.06 <b>362.2</b> 34.78 10.40 63.18 8.27 72.60 10.9 2	36.01 10.03 16.17 2.71 <b>408.2</b> 38.24 10.68 72.90 9.26 81.83 11.7 2	41.63 9.785 16.07 2.47 <b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3	46.58 9.885 16.00 2.41 <b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
tu/hW tu/hW bs/RT <b>Btu/h</b> kW tu/hW GPM t H2O GPM t H2O GPM t H2O N° N° N°	9.831 16.17 2.74 <b>166.7</b> 16.59 10.03 28.36 11.0 33.41 15.3 2 2 2 1 5 STEPS 50	9.826 16.04 2.48 <b>183.2</b> 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	9.975 15.97 2.17 <b>207.4</b> 20.22 10.27 36.89 11.7 41.57 14.9 2 2 2 1	9.960 16.00 1.90 <b>241.5</b> 23.74 10.19 42.23 10.0 48.40 13.1 2 2	9.806 16.17 1.76 <b>261.9</b> 25.43 10.32 47.13 9.81 52.51 12.2 2 2	9.778 16.38 2.73 <b>306.3</b> 29.14 10.53 52.91 12.4 61.39 16.7 2	10.26 16.04 3.06 <b>362.2</b> 34.78 10.40 63.18 8.27 72.60 10.9 2	10.03 16.17 2.71 <b>408.2</b> 38.24 10.68 72.90 9.26 81.83 11.7 2	9.785 16.07 2.47 <b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3	9.885 16.00 2.41 <b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
tu/hW bs/RT Btu/h kW tu/hW GPM t H2O GPM t H2O N° N° N° N°	16.17 2.74 <b>166.7</b> 16.59 10.03 28.36 11.0 33.41 15.3 2 2 2 1 STEPS 50	16.04 2.48 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	15.97 2.17 <b>207.4</b> 20.22 10.27 36.89 11.7 41.57 14.9 2 2 2 1	16.00 1.90 <b>241.5</b> 23.74 10.19 42.23 10.0 48.40 13.1 2 2	16.17 1.76 <b>261.9</b> 25.43 10.32 47.13 9.81 52.51 12.2 2 2	16.38 2.73 <b>306.3</b> 29.14 10.53 52.91 12.4 61.39 16.7 2	16.04 3.06 362.2 34.78 10.40 63.18 8.27 72.60 10.9 2	16.17 2.71 <b>408.2</b> 38.24 10.68 72.90 9.26 81.83 11.7 2	16.07 2.47 <b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3	16.00 2.41 <b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
bs/RT Btu/h kW tu/hW GPM t H2O GPM t H2O N° N° N° %	2.74 <b>166.7</b> 10.03 28.36 11.0 33.41 15.3 2 2 2 3 STEPS 50	2.48 <b>183.2</b> 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	2.17 <b>207.4</b> 20.22 10.27 <b>36.89</b> 11.7 <b>41.57</b> <b>14.9</b> 2 2 1	1.90 <b>241.5</b> 23.74 10.19 <b>4</b> 2.23 10.0 <b>4</b> 8.40 13.1 <b>2</b> 2	1.76 <b>261.9</b> 25.43 10.32 47.13 9.81 52.51 12.2 2 2 2	2.73 <b>306.3</b> 29.14 10.53 52.91 12.4 61.39 16.7 2	3.06 362.2 34.78 10.40 63.18 8.27 72.60 10.9 2	2.71 <b>408.2</b> 38.24 10.68 72.90 9.26 81.83 11.7 2	2.47 <b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3	2.41 <b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
Btu/h kW tu/hW GPM t H2O GPM t H2O N° N° N°	<b>166.7</b> 16.59 10.03 28.36 11.0 33.41 15.3 2 2 1 STEPS 50	<b>183.2</b> 17.37 10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	207.4 20.22 10.27 36.89 11.7 41.57 14.9 2 2 1	<b>241.5</b> 23.74 10.19 42.23 10.0 48.40 13.1 2 2	<b>261.9</b> 25.43 10.32 47.13 9.81 52.51 12.2 2 2	<b>306.3</b> 29.14 10.53 52.91 12.4 61.39 16.7 2	<b>362.2</b> 34.78 10.40 63.18 8.27 72.60 10.9 2	<b>408.2</b> 38.24 10.68 72.90 9.26 81.83 11.7 2	<b>455.7</b> 42.34 10.78 82.21 9.17 91.36 11.3	<b>519.5</b> 49.34 10.53 93.00 13.1 104.1 16.5
kW tu/hW GPM t H2O GPM t H2O N° N° N°	16.59 10.03 28.36 11.0 33.41 15.3 2 2 1 STEPS 50	17.37 10.53 31.33 11.0 36.73 15.2 2 2 2 1 STEPS	20.22 10.27 36.89 11.7 41.57 14.9 2 2 1	23.74 10.19 42.23 10.0 48.40 13.1 2 2	25.43 10.32 47.13 9.81 52.51 12.2 2 2	29.14 10.53 52.91 12.4 61.39 16.7 2	34.78 10.40 63.18 8.27 72.60 10.9 2	38.24 10.68 72.90 9.26 81.83 11.7 2	42.34 10.78 82.21 9.17 91.36 11.3	49.34 10.53 93.00 13.1 104.1 16.5
kW tu/hW GPM t H2O GPM t H2O N° N° N°	16.59 10.03 28.36 11.0 33.41 15.3 2 2 1 STEPS 50	17.37 10.53 31.33 11.0 36.73 15.2 2 2 2 1 STEPS	20.22 10.27 36.89 11.7 41.57 14.9 2 2 1	23.74 10.19 42.23 10.0 48.40 13.1 2 2	25.43 10.32 47.13 9.81 52.51 12.2 2 2	29.14 10.53 52.91 12.4 61.39 16.7 2	34.78 10.40 63.18 8.27 72.60 10.9 2	38.24 10.68 72.90 9.26 81.83 11.7 2	42.34 10.78 82.21 9.17 91.36 11.3	49.34 10.53 93.00 13.1 104.1 16.5
tu/hW GPM t H2O GPM t H2O N° N° N°	10.03 28.36 11.0 33.41 15.3 2 2 1 STEPS 50	10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	10.27 36.89 11.7 41.57 14.9 2 2 1	10.19 42.23 10.0 48.40 13.1 2 2	10.32 47.13 9.81 52.51 12.2 2 2	10.53 52.91 12.4 61.39 16.7 2	10.40 63.18 8.27 72.60 10.9 2	10.68 72.90 9.26 81.83 11.7 2	10.78 82.21 9.17 91.36 11.3	10.53 93.00 13.1 104.1 16.5
GPM t H2O GPM t H2O N° N° N°	28.36 11.0 33.41 15.3 2 2 1 STEPS 50	10.53 31.33 11.0 36.73 15.2 2 2 1 STEPS	36.89 11.7 41.57 14.9 2 2 1	42.23 10.0 48.40 13.1 2 2	47.13 9.81 52.51 12.2 2 2	52.91 12.4 61.39 16.7 2	63.18 8.27 72.60 10.9 2	72.90 9.26 81.83 11.7 2	82.21 9.17 91.36 11.3	93.00 13.1 104.1 16.5
t H2O GPM t H2O N° N° N°	11.0 33.41 15.3 2 2 1 STEPS 50	11.0 36.73 15.2 2 2 1 STEPS	11.7 41.57 14.9 2 2 1	10.0 48.40 13.1 2 2	9.81 52.51 12.2 2 2	12.4 61.39 16.7 2	8.27 72.60 10.9 2	9.26 81.83 11.7 2	9.17 91.36 11.3	13.1 104.1 16.5
t H2O GPM t H2O N° N° N°	11.0 33.41 15.3 2 2 1 STEPS 50	11.0 36.73 15.2 2 2 1 STEPS	11.7 41.57 14.9 2 2 1	10.0 48.40 13.1 2 2	9.81 52.51 12.2 2 2	12.4 61.39 16.7 2	8.27 72.60 10.9 2	9.26 81.83 11.7 2	9.17 91.36 11.3	13.1 104.1 16.5
t H2O GPM t H2O N° N° N°	11.0 33.41 15.3 2 2 1 STEPS 50	11.0 36.73 15.2 2 2 1 STEPS	11.7 41.57 14.9 2 2 1	10.0 48.40 13.1 2 2	9.81 52.51 12.2 2 2	12.4 61.39 16.7 2	8.27 72.60 10.9 2	9.26 81.83 11.7 2	9.17 91.36 11.3	13.1 104.1 16.5
GPM t H2O N° N° N°	33.41 15.3 2 2 1 STEPS 50	36.73 15.2 2 2 1 STEPS	41.57 14.9 2 2 1	48.40 13.1 2 2	52.51 12.2 2 2	61.39 16.7 2	72.60 10.9 2	81.83 11.7 2	91.36 11.3	104.1 16.5
t H2O N° N° %	15.3 2 2 1 STEPS 50	15.2 2 2 1 STEPS	14.9 2 2 1	13.1 2 2	12.2 2 2	16.7	10.9	11.7 2	11.3	16.5
t H2O N° N° %	15.3 2 2 1 STEPS 50	15.2 2 2 1 STEPS	14.9 2 2 1	13.1 2 2	12.2 2 2	16.7	10.9	11.7 2	11.3	16.5
N° N° N°	2 2 1 STEPS 50	2 2 1 STEPS	2 2 1	2	2 2	2	2	2		
N° N° N°	2 2 1 STEPS 50	2 1 STEPS	2 1	2	2					
N° N°	2 1 STEPS 50	2 1 STEPS	2 1	2	2				2	
N°	2 1 STEPS 50	2 1 STEPS	2 1	2	2					2
%	STEPS 50	STEPS		1	4		~	2	2	2
%	50		OTEDO			1	1	1	1	1
		FO	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS	STEPS
lb	D/10A	50	50	50	50	50	50	50	50	50
lh		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
lb	32.0	32.0	33.1	33.1	34.2	59.5	79.8	81.6	83.8	92.6
lb	7.72	7.72	11.0	11.0	14.3	14.3	14,.3	17.4	20.5	25.4
							,			
N°	4	4	6	6	6	2	3	3	3	4
cfm	11294	11294	12862	15764	15764	18010	25914	25914	25914	34135
kW		0.31		0.31				1.05	1.05	1.05
dB(A)	49	49	49	50	50	50	50	53	54	56
dB(A)	81	81	81	82	82	82	82	85	86	88
dB(A)	81	81	81	82	82	82	82	85	86	88
- ( )	-	-	-	-	-	-	-			
in	94.3	94.3	94.3	94.3	94.3	132.3	156.7	156.7	156.7	161.8
in	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	87.4
in	73.4	73.4	73.4	73.4	73.4	78.0	78.0	78.0	78.0	84.6
lb										4189
d d	cfm kW B(A) B(A) B(A) in in in ib urce (s	cfm 11294 kW 0.31 B(A) 49 B(A) 81 B(A) 81 in 94.3 in 47.0 in 73.4 Ib 1477 urce (side) heat anger air (in) 46.	cfm         11294         11294           kW         0.31         0.31           B(A)         49         49           B(A)         81         81           B(A)         81         81           in         94.3         94.3           in         47.0         47.0           in         73.4         73.4           lb         1477         1499	cfm         11294         11294         12862           kW         0.31         0.31         0.29           B(A)         49         49         49           B(A)         81         81         81           B(A)         81         81         81           in         94.3         94.3         94.3           in         47.0         47.0         47.0           in         73.4         73.4         73.4           Ib         1477         1499         1565           urce (side) heat exchanger air (in) 46.9°F - 8% R.H.         anger air (in) 46.9°F - 8% R.H.	cfm         11294         11294         12862         15764           kW         0.31         0.31         0.29         0.31           B(A)         49         49         49         50           B(A)         81         81         81         82           B(A)         81         81         81         82           in         94.3         94.3         94.3         94.3           in         47.0         47.0         47.0         47.0           in         73.4         73.4         73.4         160           urce (side) heat exchanger air (in) 95.0°F.         1609         95.0°F.         1609	cfm         11294         11294         12862         15764         15764           kW         0.31         0.31         0.29         0.31         0.31           B(A)         49         49         50         50           B(A)         81         81         82         82           B(A)         81         81         81         82         82           in         94.3         94.3         94.3         94.3         94.3           in         47.0         47.0         47.0         47.0         47.0           in         73.4         73.4         73.4         73.4         73.4         1609           urce (side) heat exchanger air (in) 95.0°F.         anger air (in) 46.9°F - 8% R.H.         H.H.         50°F.         50°F.	cfm         11294         11294         12862         15764         15764         18010           kW         0.31         0.31         0.29         0.31         0.31         1.05           B(A)         49         49         49         50         50         50           B(A)         81         81         81         82         82         82           B(A)         81         81         81         82         82         82           in         94.3         94.3         94.3         94.3         94.3         132.3           in         47.0         47.0         47.0         47.0         47.0           in         73.4         73.4         73.4         73.4         73.4         78.0           lb         1477         1499         1565         1609         1698         2116 <td>cfm         11294         11294         12862         15764         15764         18010         25914           kW         0.31         0.31         0.29         0.31         0.31         1.05         1.05           B(A)         49         49         49         50         50         50         50           B(A)         81         81         82         82         82         82         82           B(A)         81         81         81         82         82         82         82           B(A)         81         81         81         82         82         82         82           in         94.3         94.3         94.3         94.3         132.3         156.7           in         47.0         47.0         47.0         47.0         47.0         47.0           in         73.4         73.4         73.4         73.4         73.4         78.0         78.0           lb         1477         1499         1565         1609         1698         2116         2491</td> <td>cfm         11294         11294         12862         15764         15764         18010         25914         25914           kW         0.31         0.31         0.29         0.31         0.31         1.05         1.05         1.05           B(A)         49         49         50         50         50         50         53           B(A)         81         81         82         82         82         82         85           B(A)         81         81         81         82         82         82         85           B(A)         81         81         81         82         82         82         85           in         94.3         94.3         94.3         132.3         156.7         156.7           in         77.0         47.0         47.0         47.0         47.0         47.0           in         73.4         73.4         73.4         73.4         73.4         73.4         73.0         78.0         78.0           lb         1477         1499         1565         1609         1698         2116         2491         2690</td> <td>cfm         11294         11294         12862         15764         18010         25914         105         1.05</td>	cfm         11294         11294         12862         15764         15764         18010         25914           kW         0.31         0.31         0.29         0.31         0.31         1.05         1.05           B(A)         49         49         49         50         50         50         50           B(A)         81         81         82         82         82         82         82           B(A)         81         81         81         82         82         82         82           B(A)         81         81         81         82         82         82         82           in         94.3         94.3         94.3         94.3         132.3         156.7           in         47.0         47.0         47.0         47.0         47.0         47.0           in         73.4         73.4         73.4         73.4         73.4         78.0         78.0           lb         1477         1499         1565         1609         1698         2116         2491	cfm         11294         11294         12862         15764         15764         18010         25914         25914           kW         0.31         0.31         0.29         0.31         0.31         1.05         1.05         1.05           B(A)         49         49         50         50         50         50         53           B(A)         81         81         82         82         82         82         85           B(A)         81         81         81         82         82         82         85           B(A)         81         81         81         82         82         82         85           in         94.3         94.3         94.3         132.3         156.7         156.7           in         77.0         47.0         47.0         47.0         47.0         47.0           in         73.4         73.4         73.4         73.4         73.4         73.4         73.0         78.0         78.0           lb         1477         1499         1565         1609         1698         2116         2491         2690	cfm         11294         11294         12862         15764         18010         25914         105         1.05





## **GENERAL TECHNICAL DATA**

[Standard AHRI 550/590 - I-P System ]

Power supply			0612P	0662P	0712P	0812P	
		V/ph/Hz					
PERFORMANCE		· · · · · · · · · · · · · · · · · · ·					
COOLING ONLY							
Cooling capacity	(1)(2)(10)	RT	43.80	51.25	58.47	64.15	
Total power input	(1)(2)(10)	kW	50.95	59.88	66.05	76.38	
COPr	(1)(2)(10)	Btu/hW	10.32	10.26	10.63	10.08	
PLV.SI REFERENCE	(1)(2)(10)	Btu/hW		15.97	16.04	16.04	
Rc (ASHRAE)	(.)(=)()	Ibs/RT	2.72	2.33	3.38	3.13	
HEATING ONLY				2.00	0.00	0.10	
Total heating capacity	(3)	kBtu/h	576.9	653.8	758.0	845.0	
Fotal power input	(3)	kW	54.71	63.93	73.24	82.12	
COP	(3)	Btu/hW		10.23	10.35	10.29	
EXCHANGERS	(0)	Btarrit				10.20	
HEAT EXCHANGER USER SIDE IN REFRIGERATION							
Vater flow	(1)(2)	GPM	106.1	124.2	141.7	155.5	
Pressure drop at the heat exchanger	(1)(2)	ft H2O	10.5	14.4	15.8	16.2	 
HEAT EXCHANGER USER SIDE IN HEATING	()/~/	11120	10.0	17.7	10.0	10.2	
Vater flow	(3)	GPM	115.6	131.1	152.0	169.4	
Pressure drop at the heat exchanger	(3)	ft H2O	12.5	16.1	18.2	19.2	
	(3)	п п20	12.0	10.1	10.2	13.2	
Compressors nr.		N°	2	2	2	2	 
Jompressors nr. Jumber of capacity steps		N°	2	2	2	2	 
		N°				_	 
No. Circuits		IN*	1	1	1 STEPS	1	
Regulation		%		50		50	
Ain. capacity step		%	50		50		
Refrigerant					R410A		
Refrigerant charge		lb	119	119	197	201	
Dil charge		lb	30.0	28.9	27.8	27.8	
ANS							
Quantity		N°	4	4	6	6	
Air flow		cfm	32864	35830	47717	47717	
ans power input		kW	1.05	1.25	1.05	1.05	
NOISE LEVEL							
Sound Pressure	(4)	dB(A)	57	57	57	58	
Sound power level in cooling	(5)(7)	dB(A)	89	89	89	90	
Sound power level in heating	(6)(8)	dB(A)	89	89	89	90	
SIZE AND WEIGHT							
A	(9)	in	161.8	161.8	201.2	201.2	
3	(9)	in	87.4	87.4	87.4	87.4	
1	(9)	in	84.6	84.6	84.6	84.6	
Operating weight	(9)	lb	4586	4608	5512	5578	



